# System of Systems Engineering Collaborators Information Exchange (SoSECIE)

## ****July 28, 2020****11:00 a.m. to Noon Eastern Time

**Addressing Mission Engineering from a Lead Systems Integration Perspective**

***Presenter: Dr. Warren Vaneman***

***Co-Author: Prof. Ronald Carlson***

#### Abstract

Mission success ultimately depends on the successful integration of operational planning, engineering, and acquisition to achieve the desired goals. This presentation considers the interaction of the capability-based disciplines of mission planning, mission engineering, and lead systems integration, and develops a mission framework that defines the structure that provides traceability from the policy and operational drivers of the mission, to the system of systems that satisfy the mission capabilities, and finally to the individual system’s hardware and software. The mission framework, an extension of the lead systems integration enterprise framework, assists in making prioritization and budget decisions, identifies mission capabilities that are not being addressed, or are being overly addressed, identifies technology development efforts that may be leveraged or combined, and helps to identify technological trends and outliers. The framework allows for insight and discovery of functions, systems, and services that already exist within the mission framework that could be used to satisfy emerging mission goals and objectives. Finally it identifies possible opportunities where existing technology can be leveraged for reuse to enable faster delivery to the mission.

#### Biographies

Dr. Vaneman has over 30 years of leadership and systems engineering experience from positions within the Intelligence Community and DoD, and is currently a Professor of Practice in the System Engineering Department at the Naval Postgraduate School. He is a retired Navy Reserve Captain, who has a BS from the State University of New York Maritime College, a MS and a Ph.D. in Industrial and Systems Engineering from Virginia Tech.

Prof. Carlson served 26 years in naval aviation as a pilot, seven years of which were at NAVAIR where he led NAVAIR Systems Engineers through several years of systems engineering revitalization. He joined the NPS SE department 9 years ago. He has a MPhil in systems engineering from Stevens Institute of Technology, MS in strategic studies and national policy from the Naval War College and MBA from Embry Riddle Aeronautical University, and his BS in nuclear engineering from the University of Michigan.